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FIRST APPROACH TO THE CHRONOLOGICAL SEQUENCE OF THE ENGRAVED STONE PLAQUES OF THE FOZ DO MEDAL ALLUVIAL TERRACE IN TRÁS-OS-MONTES, PORTUGAL

PRIMERA PROXIMACIÓN A LA SECUENCIA CRONOLÓGICA DE LAS PLACAS GRABADAS DE LAS TERRAZAS FLUVIALES DE FOZ DE MEDAL, TRÁS-OS-MONTES, PORTUGAL

Sofia Soares de Figueiredo (1), Luís Nobre (2), Pedro Xavier (1), Rita Gaspar (3), Joana Carrondo (4)

Abstract

On the Foz do Medal Alluvial Terrace, including its left and right banks, an impressive collection of Paleolithic portable art was discovered, ranging a total of 1511 fragments.

A total of 83% of the fragments dates back to the Magdalenian period. However, the biggest collection of plaques from the Solutrean period in Portugal was also exhumed, along with probably the largest collection of plaques in the Iberian Peninsula dating back to the Gravettian period. The Foz do Medal Alluvial Terrace is one of the most important sites of mobile art on an international level. Therefore, its study is of the utmost importance. This article intends to briefly describe the Paleolithic sequence of the decorated plaques on the Foz do Medal Alluvial Terrace, by focusing primarily on its Gravettian and Solutrean moments.

Key words: Mobile Art, Portugal, Gravettian, Solutrean, Magdalenian.

Resumen

En la desembocadura del río Medal, a ambos lados de la orilla, se ha descubierto recientemente una notable colección de arte mueble prehistórico compuesta de 1511 fragmentos. Aunque el 83% de las piezas se sitúan cronológicamente en el Magdaleniense, fue exhumado el mayor conjunto de placas solutrenses de Portugal y probablemente la mayor colección de placas de época Gravetiense de la Península Ibérica. Por lo tanto, las terrazas fluviales del río Medal, se impone como uno de los sitios arqueológicos con arte mueble más importantes internacionalmente y su estudio es de considerable interés. Con este artículo tenemos la intención de hacer una breve presentación de la secuencia durante el Paleolítico de placas mobiliarias grabadas del río Medal, en las que destacan las de cronología del Gravetiense y del Magdaleniense.

Palabras claves: Arte Mueble; Portugal; Solutrense; Magdaleniense; Gravetiense.

¹ Lab2PT- Landscapes, Heritage and Territory Laboratory. University of Minho, Portugal. E-mail: sofia.csf@gmail.com; pedroxavy@gmail.com.

² ACINEP- Centro de Estudos Prehistóricos; CEMAC- Centro de estudos para el medioambiente y la cultura. E-mail: luis_snobre@sapo.pt.

³ InBIO- Rede de Investigação em Biodiversidade e Biologia Evolutiva, Laboratório Associado; CIBIO- Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto. E-mail: ritantunesgaspar@gmail.com.

⁴ Grupo Quaternário e Pré-História do Centro de Geociências de Coimbra. E-mail: joanacarrondo@hotmail.com.

1.- INTRODUCTION

The Foz do Medal Alluvial Terrace is located on the valley of the Sabor River in Eastern Trás-os-Montes in Northeast Portugal (Figure 1).

The whole region of Trás-os-Montes is included in the hydrographic basin of the Douro River. The flow of the Sabor River is extremely irregular, due not only to the climate but also to its uneven bed. In physical terms, Trás-os-Montes is a site of high average altitude, formed by a sequence of plateaus which are around 700 meters high. Above these, there are mountains with topographic traits similar to those of the plateaus, and below there are deep valleys torn by rivers or tectonic depressions (e.g. Taborda, 1987). Regarding the geomorphology and geology of Eastern Trás-os-Montes, the whole region is a part of the peninsular Hesperian Massif. This Variscan platform, whose complete orogenic cycle is called Variscan, was formed during the Devonian, Carbonic and Permian periods (Ferreira, 2005:57).

The Sabor River runs through a very steep valley with "V"-shaped slopes. There is a substantial high difference between the bottom of the valley and the plain surfaces on its top (Gaspar *et al.*, 2014:60). Nevertheless, the valley broadens out in some areas, thus allowing the formation of large platforms of fluvial origin. The Foz do Medal Alluvial Terrace is located on one of these platforms on the left bank of the Sabor River, in the parish of Meirinhos, Mogadouro municipality. The flat platform at the bottom of the valley where it is situated is right at the confluence of the Pedra de Asma and Medal streams with the Sabor River, only eight meters above the current water stream (Gaspar *et al.*, 2014:59).

The archaeological work at this archaeological site was performed within the framework of preventive archaeology, in the building context of the Hydroelectric Exploitation of Baixo Sabor. This great construction undertaking lasted for seven years. Nowadays, around 90% of the predicted

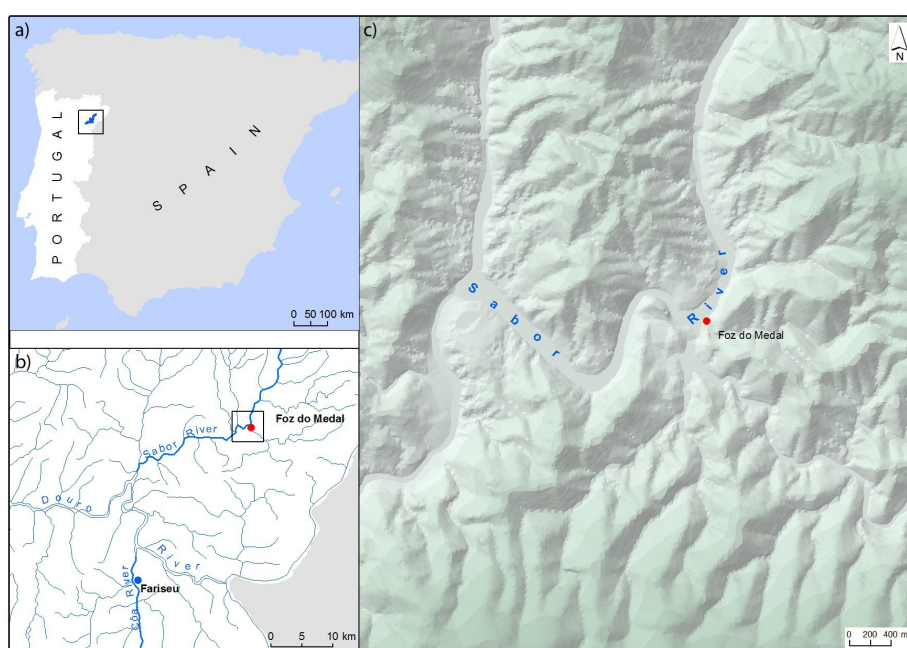


Fig. 1.- Localization of the Foz do Medal Alluvial Terrace in the peninsular context. Map by João Monteiro.

area is already submerged, in a total of 3000 hectares along around 60 km. Given the great impact of the construction work on the landscape, a Plan of Heritage Protection (PHP) was established. The Plan was divided into different studies, most of which of a chronological scope, but also thematic and geographic, within which several archaeological work projects were performed (Dordio, 2013). The intervention at the Foz do Medal Alluvial Terrace is one example.

The archaeological excavations at the Foz do Medal Alluvial Terrace were carried out in different phases. Both the left and the right banks of the Medal stream were subject to intervention. However, the size and result of the interventions differed (Figure 2).

On the left bank of the Medal stream, two diagnostic surveys were carried out (Survey III and Survey IV). As far as Survey IV is concerned, given

the relevance and importance of the archaeological contexts and materials which were identified, the initial survey of 2X2 was extended to one of 4X4. Four engraved plaques were found among the deposits of Survey IV. The stratigraphic units where they were spotted date back to the Solutrean period (Gaspar *et al.*, in press).

On the right bank of the Foz do Medal Alluvial Terrace, the archaeological intervention was significantly bigger. A total of 900m² were excavated, which makes this the biggest area of the Upper Paleolithic ever to be excavated in the Portuguese territory. Nonetheless, the stratigraphy of the right bank of the Foz do Medal Alluvial Terrace was extremely complex, including archaeological levels dating from the Middle Paleolithic to the Bronze Age (Figueiredo *et al.*, 2014; Gaspar *et al.*, 2014; Gaspar, *et al.*, 2015). From the Upper Paleolithic deposits which were individualized at the site, and considering the study of numerous lithic artifacts which were exhumed, some were insert-



Fig. 2.- Localization of the archaeological intervention at the Foz do Medal Alluvial Terrace, in the left and right bank. Aerial photography by Arte Fotográfica Lda.

ed in the Gravettian and others in the Magdalenian. It is relevant to stress out that the Paleolithic deposits were located in secondary contexts. Although they were sealed, they skidded from their original position, which caused the majority of the engraved pieces to break. Around 24 fragments of engraved plaques were exhumed from the levels attributed to the Gravettian, whereas 1257 fragments of decorated plaques were exhumed from the ones attributed to the Magdalenian.

In total, 1511 fragments of engraved plaques were found at the Foz do Medal Alluvial Terrace, 24 of which from the Gravettian, 4 of the Solutrean and 1257 of the Magdalenian. The other 226 fragments could not be chronologically contextualized in a more specific way.

As previously mentioned, the archaeological work at the Foz do Medal Alluvial Terrace was developed within a framework of preventive archaeology. The field work took place between 2011 and 2013. The office work happened between 2013 and 2014. Finally, the site final reports were written in 2015. Given the amount of information which was collected and produced in just four years, we consider all of the bibliography we produced about the Foz do Medal Alluvial Terrace to be a solid introduction to a study which will necessarily have to dig deeper into the subject, considering the relevance of the archaeological site and its findings.

Since we already wrote three articles about mobile art of the Foz do Medal Alluvial Terrace, focusing primarily on its Magdalenian collection (Figueiredo *et al.*, 2015; Figueiredo *et al.*, 2014; Figueiredo *et al.*, 2015), we intend to reveal other pieces of mobile art of the same Paleolithic chro-

nology, which are unknown until now, dating back to the Gravettian and the Solutrean. A chronological sequence of the utmost importance is thus stated in the mobile plaques of the Foz do Medal Alluvial Terrace, one which is up until now unique at an open air archaeological site, ranging a considerable part of the Upper Paleolithic.

2.- CHARACTERIZATION OF THE DECORATED PLAQUES AND ENGRAVING TECHNIQUES

The collection of mobile art exhumed from the right bank of the Foz do Medal Alluvial Terrace is composed by 1504 fragments, only one of which is complete. In fact, since the stratigraphic units from which the fragments were removed are secondary contexts, a considerable fragmentation of the pieces was observed. That is well stated in the average size of the fragments, which are 7,8 cm long, 4 cm wide and 1,1 cm thick.

As far as the surface of the plaques is concerned, the majority did not show evidence of any treatment previous to the engraving of the pictures. Yet, at least 8,2% of the total of plaques of the right river bank showed some sort of anthropic polishing, previous to the execution of the pictures. Regarding other types of treatment, it is relevant to stress out that in some cases it seems that the plaques were thermically treated. The stigmata corresponding to this alteration by fire seem to be present in at least 20 pieces.

As regards the engraving techniques on the right bank of the Foz do Medal Alluvial Terrace, nine different types were identified: four base techniques, plus five combinations amongst them. Regarding the base techniques, the following were

identified: abrasion, fine engraving, superficial engraving, and pecking. Four main techniques stood out both in the Gravettian and the Magdalenian collection. Fine engraving is the predominant technique in both collections, with respectively 84% and 86% of the motifs, followed by pecked motifs accounting for 13% in the Gravettian and 9% in the Magdalenian collection. The abrasion and fine engraving mixed technique accounts for 2% of the Gravettian corpus and 3% of the Magdalenian. The superficial engraving technique is present in 1% of both chronologies. The abrasion technique was recognizable in 1% of the pictures, only in the Magdalenian collection. The remaining techniques only come up in the Magdalenian plaques, only in residual amounts.

When crossing the Foz do Medal Alluvial Terrace towards the left bank of the Medal stream, the numbers differ significantly. As previously referred, only four engraved plaques were exhumed from a Solutrean context. The plaques are of considerable size, given that their average measurements of 26,9 cm length, 9,4 cm width and 2,4 cm thickness.

All of the collected samples are made out of schist, being that three are plaques and another one is a pebble. No polishing of the surface was observed. Yet, one of them presents evidence of some sort of thermal alteration.

In the collection of plaques from the left bank, only two execution techniques were identified: fine engraving and pecking. As far as the last one is concerned, it applies to 4 motifs with dispersed pecking. The remaining motifs were executed by means of fine engraving.

3.- PORTRAYED THEMES AND POSSIBLE ANALOGIES

In the individualization and classification of the engraved figures present in the collection of Medal, four different motif categories were outlined: figurative, geometric, abstract and undetermined (Figueiredo *et al.*, 2015). When the whole collection of the Foz do Medal is taken into account, regardless of the chronology, figurative themes are always the least prevalent. This is probably due to the post-depositional processes which affected the Paleolithic layers, causing a great amount of pieces to break. Therefore, the majority of the motifs was classified as abstract or undetermined, given the difficulty in grasping the motifs spotted in small plaque fragments, even though intensive reassembly work was undertaken (Figueiredo *et al.*, 2015).

Nevertheless, given the investigation tradition in Paleolithic art, as well as the reduced number of figurative themes in the Medal plaques, it is for now easier to approach the latter rather than geometric, abstract or undetermined themes. Therefore, it is important to clarify what we mean by figurative motifs.

In the tradition of Paleolithic studies, the figurative motifs group is formed by representations of animals and human beings (Sauvet, 1993). According to Lorblanchet (Lorblanchet, 1993:211), figurative motifs can be both the representation of an object considering its real physical appearance or, in a broader sense, they can report to the conscious production of a form which is a copy of something real or imaginary.

In the figurative motifs typology of the Sabor valley, not only did we consider the two traditional types established by Paleolithic art, con-substantiated in the Anthropomorphic and Zoomorphic, but we also considered the following types: Hand-prints, Foot-prints, Star-shaped, Ramiforms, Scalariforms, Weapons and others. All of these types were included in the figurative motifs, assuming they refer to a real referent or a specific shape.

3.1. GRAVETTIAN

The Gravettian culture, traditionally started in Central Europe, is also the richest in artistic terms (Clottes, 2008:13). Some exceptions aside, the works and pieces from this region of Europe are not matched by any other classical zones of European Paleolithic art. Thus, according to Sanchidrián (Sanchidrián, 2005:134), towards the Franco-Cantabrian zone, apart from the "Venus" figurines and the recurrent ornamental prototypes, the corpus is barely enlarged by some pieces portraying horses, mammoths, bison, goats and deer of simple execution. Towards the South of the Ebro, namely in the cave of Parpalló, the scenery does not become any richer, since only seven Gravettian pieces were classified (Villaverde Bonilla, 1994). By further reducing the analyzed territory, by referring only to Portugal, there is only one place where an engraved plaque from this period was exhumed - Cardina I in the Côa Valley, contextualized in the late Gravettian (Aubry, 2009:383). It is therefore understandable that the collection of Gravettian engraved plaques of the Foz do Medal is of major scientific relevance to the study of rock art dating back to this period in Western Europe.

A closer look at the figurative motifs thereby represented, regarding the zoomorphic group, in all of the 24 plaques which were exhumed from the Gravettian deposits, only one shows a motif whose outline allows us to unequivocally insert it in this group. That is specifically plaque number 5251, where animal legs are depicted, together with a robust-looking body. The shape of the legs is somewhat unusual, represented by parallel converging lines. Although the extremities are not closed, fingers or claws seem to come out of them, represented by small lines (Figure 3).

When looking for similar representations in the Peninsular Gravettian, in Parpalló the representation of a bovid can be found, whose right paw seems to be similar to the one observed on this Medal plaque. Besides the zoomorphic motif, ramiform ones were also included in the figurative themes. In fact, we believe that the motifs classified as Ramiform of the Gravettian can also correspond to arrows or spears.

However, in spite of our efforts to find parallel representations, we did not succeed. It is important to mention the similarities with an engraved block in La Ferrassie (Leroi-Gourhan, 1995:338), although this place in Dordogne is previous to the Medal Gravettian level.

Despite our attempt, these motifs have to be better analyzed in the future, even because in one of the cases where these motifs are portrayed (plaques 14978+14981) in their A side, besides dispersed pecking there is also a motif which is difficult to classify, which might correspond to a zoomorphic figure (Figure 4).



Fig. 3.- Engraved plaque no. 5251, face A and face B. Drawing by Figueiredo et al..



Fig. 5. - Engraved plaque no. 403 depicting a horse. Drawing by Figueiredo et al..

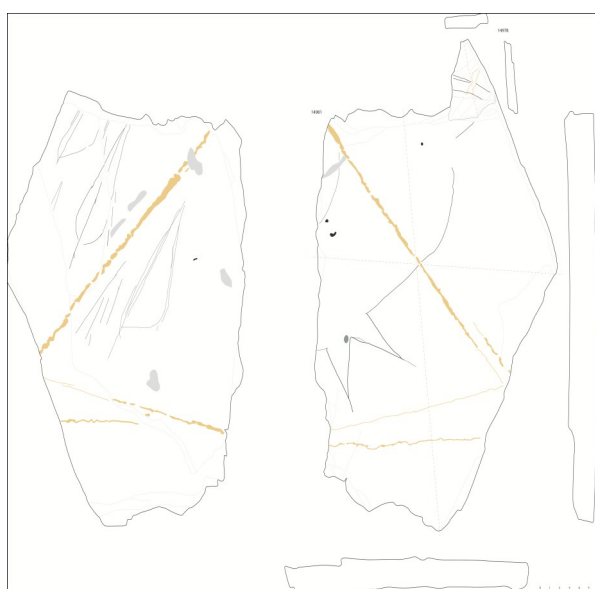


Fig. 4. - Engraved plaques 14978+14981, face A and face B. Drawing by Figueiredo et al..

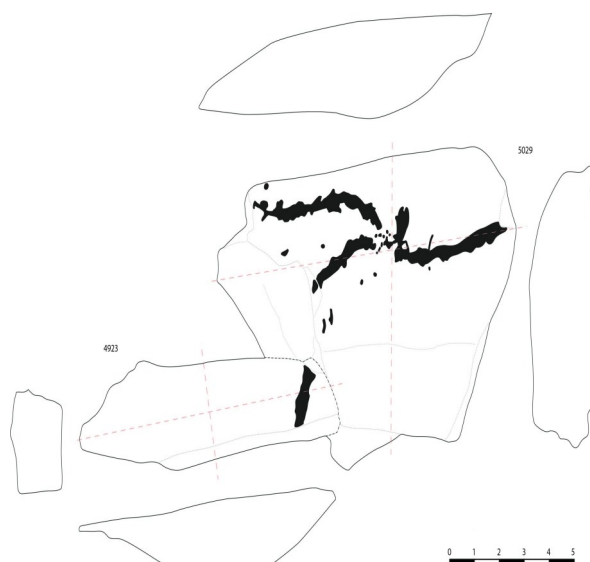


Fig. 8. - Engraved plaques no. 4923+5029 depicting an auroch. Drawing by Figueiredo et al..

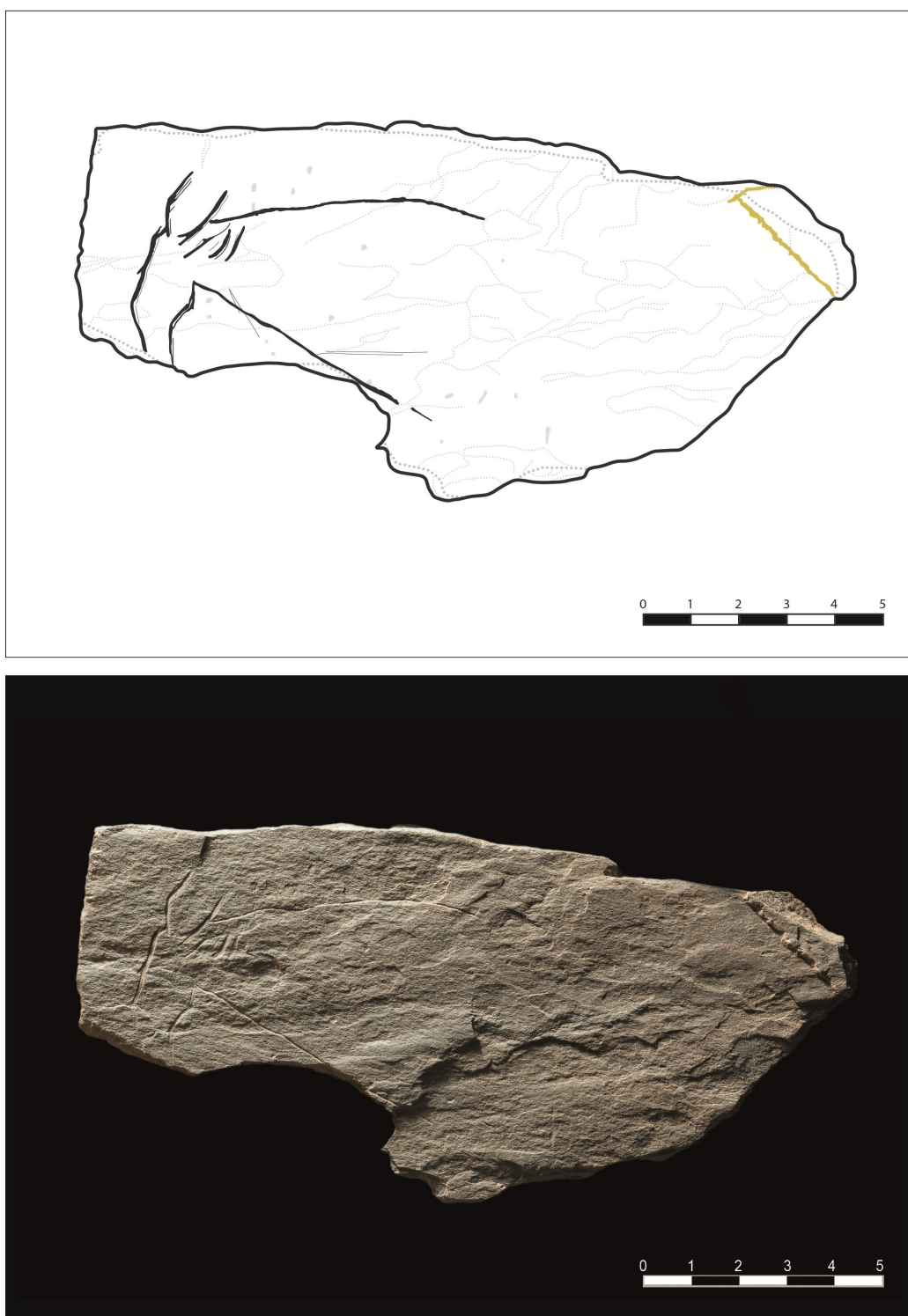


Fig. 6. - Engraved plaque no. 5031 depicting a goat. Drawing by Figueiredo et al., photo by Adriano Borges.

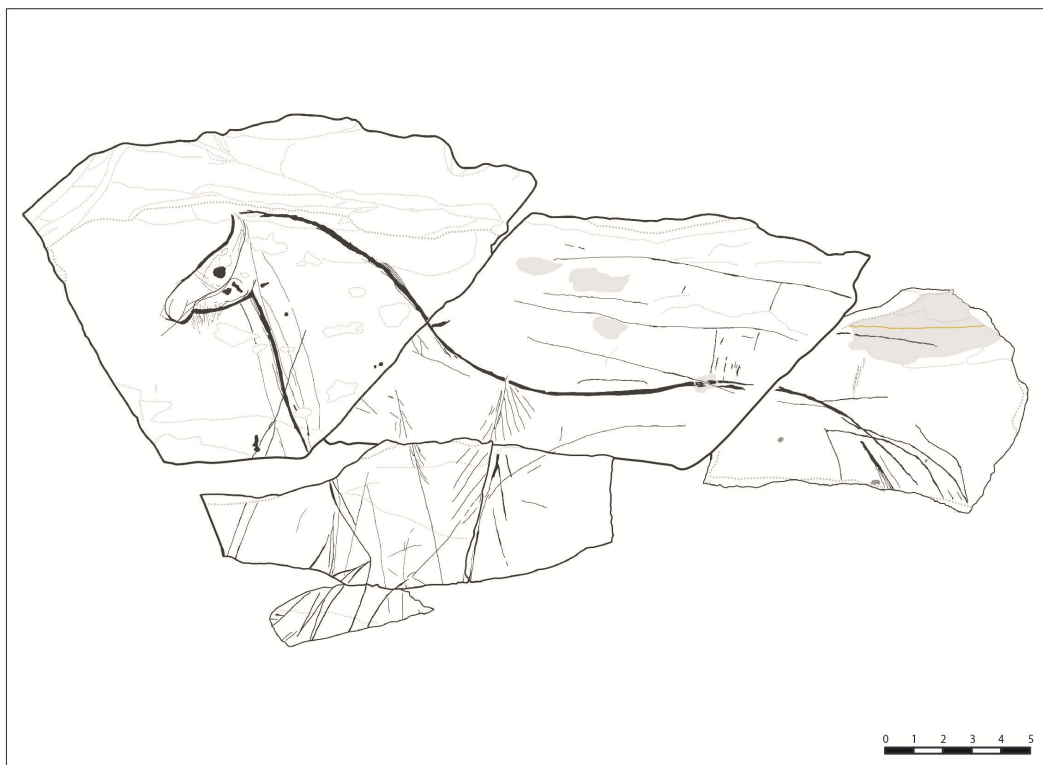


Fig. 7. - Engraved plaques no. 5166+5347+5367+5556+5797+5808 depicting a horse.

3.2. SOLUTREAN

In the European Solutrean period, two major trends come up depending on the geographic point which is analyzed. On the one hand, in the Franco-Cantabrian area, mobile art is still relatively scarce, although there are more pieces when comparing with the previous period. In the South of the Ebro River, in the Iberian Peninsula, Solutrean mobile art, as well as parietal art, represent the most creative period in the region (Sanchidrián, 2005:156).

One of the places which state the importance of Solutrean art in the Mediterranean is definitely Parpalló. In this cave, there is the richest collection of Solutrean mobile art in the Iberian Peninsula (Villaverde Bonilla, 2004:75). Regarding the motifs, the themes which are represented are aurochs, horses, deer and goats. The animals are represented with arched legs and there is some excess in the thickness of their necks and heads. One of the features of the whole Solutrean period is the three-lined representation of the heads, especially those of the deer. As far as equines are concerned, they are represented with convex jaws and staggered hair (Villaverde Bonilla, 1994, 2004).

Two stations with Solutrean mobile art were found in Portugal. The first one was the Caldeirão cave, from which an engraved plaque was exhumed (Zilhão, 1988). The second one, published in our decade, refers to Vale do Boi, where at least two decorated plaques were found (Simón Vallejo *et al.*, 2012).

On a closer approach to the above mentioned sites, in the Caldeirão Cave the motifs are schematic and, in Zilhão's interpretation (1988:106-107), they can be pisciform, as well as hind legs or back of another animal on one of the sides. On the other side of the same piece, there is a highly stylized anthropomorphic figure.

As far as the Vale Boi site is concerned, the situation gets more complex. The two exhumed plaques actually stem from two different layers. One is attributed to the *Upper Solutrean with datings of $^{14}\text{C}/\text{AMS}$ of ca. 19.700-19.350 BP*, the other one to the *Mid-Solutrean with two datings of $^{14}\text{C}/\text{AMS}$ of ca. 21-20 ka BP* (Simón Vallejo *et al.*, 2012:10). The plaque attributed to the Mid-Solutrean – Plaque 2- is exponentially richer in figurative terms than the one dating back to the Upper Solutrean – Plaque 1-, once in the latter only abstract artwork comes up. On the other hand, side A of Plaque 2 shows at least three aurochs and possibly a deer.

Since there is only one figurative theme on the four plaques of the left bank of the Medal, and because of the fact that it is a horse, the analogies we can establish with the same type of representation find better echo in Parpalló. However, this analogy gets more complex, because in the fragmentation of plaque 9224, where a horse is portrayed, it is difficult to characterize the features of the head (Figure 5).

When analyzing some of the portrayals of equids in Parpalló, the similarities are evident. The representation of equids gains importance throughout the Solutrean, mostly from the Mid to Upper Solutrean (Villaverde Bonilla, 1994:163).

3.3. MAGDALENIAN

The decorated plaques mostly characterize the European Magdalenian, a moment when mobile art increased to impressive numbers. 1257 fragments dating back to this chronology were exhumed in the Foz do Medal Terrace.

After analyzing the figurative motifs, and because of the fact that the number of pieces is extremely high, we will only focus on the zoomorphic motifs of the Magdalenian engraved plaques of the Foz do Medal, whose shape allows us to identify the species. Thus, from a total of 1257 fragments, we will only deal with the 108 pieces whose reassembly has already been undertaken (Figueiredo *et al.*, 2015), materialized into 67 plaques. On these plaques, 91 figurative motifs were individualized, and these are distributed into the following categories: 38 goats, 30 equids, 17 bovine and 6 deer.

The two most represented species, goats (Figure 6) and equids (Figure 7), have different representations, sometimes more simple and schematic, at other times more complex and naturalistic. The question is whether these representations correspond to different stages within the Magdalenian period or, on the contrary, are contemporary. This question can best be clarified when starting the study of overlaps, which are extremely numerous in the collection of this period.

Unfortunately, regarding the aurochs, we have no complete figuration. However, it was noted that the representations of aurochs are those with greater technical variability in implementation (Figure 8).

Finally, the deer is by far the least represented animal, and, a review of the reasons may further reduce its value (Figure 9).

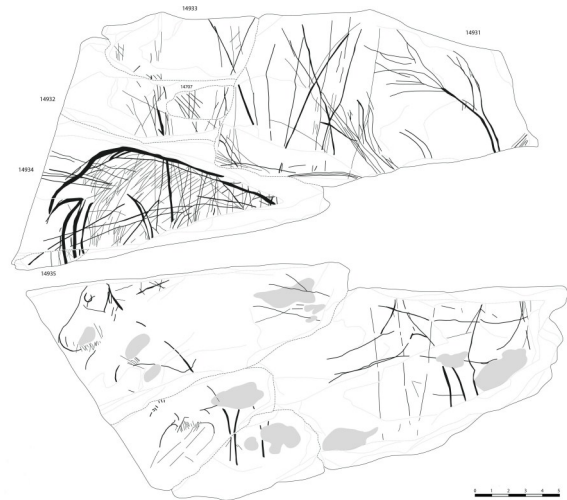


Fig. 9. - Engraved plaques no. 14935+14934+14932+14933+14707+14931 depicting a deer, face A and face B. Drawing by Figueiredo *et al.*

Regarding Paleolithic mobile art in Portugal, until the discovery of the Foz do Medal Terrace, the largest collection came from the Fariseu site, in the Côa Valley, with around 77 engraved plaques, chronologically attributed to the Final Magdalenian (Aubry, 2009b; Baptista, 2009; García Díez & Aubry, 2002). The majority of the plaques come from layer 4, placed in chronological terms, through TL and OSL dating, between 12 000 and 10 000 BP (Santos, 2012:43). Nevertheless, when comparing the zoomorphic representations of engraved plaques of the Fariseu with the Foz do Medal, there are noteworthy differences. Thus, the most represented species are deer and goats, and representations of equine or bovine animals are scarce or non-existent. The deer and goats figurations are characterized by quadrangular bodies filled with multiple-incised lines whose

ends are not represented (Aubry, 2009:386-388; Baptista, 2009:66).

Assuming the parietal rock art of the Côa Valley as a term of comparison, whereas, in the past, Paleolithic art was considered to be divided into two great cycles (a Gravettian-Solutrean and a Magdalenian one), a new model was recently proposed. It considers three phases (Santos, 2012), the first one being a Gravettian or Early Solutrean, a second one between the Upper Solutrean and the Upper Magdalenian periods, and the last one in the Final Magdalenian.

Given the characteristics of figurative Magdalenian motifs in the Foz do Medal Terrace, we believe that at least its more naturalistic versions are closer to the second phase advocated for the parietal art of the Côa, which corresponds to period IV of Leroi-Gourhan (Leroi-Gourhan, 1995).

4.- CONCLUSION

In the late 1980's, when articles about Paleolithic art in Portugal were written, they drew up a very poor scenario, where the only relevant sites were the Escoural Cave and the engraved rock in Mazouco. When addressing Paleolithic mobile art, the situation looked even more impoverished, with only three pieces, two of which were extremely dubious. Thus, in 1988 (108), Zilhão wrote that the engraved plaque found in the Caldeirão cave held the importance of being the first mobile art object found in Portugal, because both its origin and context were trustworthy.

After more than two decades, the above described scenario has changed dramatically, particularly as far as parietal Paleolithic art is con-

cerned. In fact, the entire panorama of the Upper Paleolithic has changed considering the amazing discoveries made in the Côa Valley. However, as regards mobile art, in 2012 Simon Vallejo, Cortes Sanchez and Bicho wrote that the mobile corpus of Paleolithic art was still limited. Indeed, up until that date, the number of objects with mobile art known in Portugal were less than a hundred, being that the richest site was the Fariseu in the Côa Valley, with 77 pieces dating back to the final Magdalenian. As regards prior periods, only one Gravettian plaque (Aubry, 2009a) and three Solutrean (Simon Vallejo *et al*, 2012; Zilhão, 1988) were known.

The excavation of the Foz do Medal Alluvial Terrace, both on its right and left banks, completely altered this reality, and the number of fragments of engraved plaques found there amounts to an amazing 1511 (1504 on the Right Bank and 7 on the Left Bank). From this huge number, about 24 correspond to the Gravettian, 4 to the the Solutrean and 1257 to the Magdalenian. For that reason, we are probably before the largest mobile art collection attributed to the Gravettian in the Iberian Peninsula. Moreover, the largest mobile art collection of Solutrean chronology in Portugal also lies there. Finally, it constitutes the largest Magdalenian mobile art collection at an open-air site in Europe.

This paper intended to briefly disclose the chronological sequence of engraved plaques of the Foz do Medal Alluvial Terrace. In order to bring us closer to the meanings of the decorated plaques to the people who handled them, further studies and questionnaires will have to be undertaken in the future, by attempting to link territories, contexts, supports and motifs.

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